

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Nashville 2960 Foster Creighton Road Nashville, TN 37204 Tel: 800-765-0980

TestAmerica Job ID: NUJ3364

Client Project/Site: PASUS-Dimock-AMEC-102011 Client Project Description: PASUS - VARIOUS SITES

For:

Cabot Oil Five Penn Center West, Suite 4101 Pittsburg, PA 1527641

Attn: Phillip Levasseur

Authorized for release by: 11/7/2011 2:30:25 PM

Ryan Fitzwater
Project Manager
Ryan.Fitzwater@testamericainc.com

.....LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary

Client: Cabot Oil

Project/Site: PASUS-Dimock-AMEC-102011

TestAmerica Job ID: NUJ3364

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
NUJ3364-01	Well 1	Water	10/25/11 14:10	10/26/11 07:35

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Case Narrative

Client: Cabot Oil TestAmerica Job ID: NUJ3364

Project/Site: PASUS-Dimock-AMEC-102011

Job ID: NUJ3364

Laboratory: TestAmerica Nashville

Narrative

WELL 1 10/25/11 1410

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Definitions/Glossary

Client: Cabot Oil TestAmerica Job ID: NUJ3364

Project/Site: PASUS-Dimock-AMEC-102011

Glossary

EPA

Abbreviation	These commonly used abbreviations may or may not be present in this report.
‡	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit

MDL	Method Detection Limit
ML	Minimum Level (Dioxin)

ND Not	detected at the reporting limit	(or MDL or EDL if shown)
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United States Environmental Protection Agency

		20 21 201
PQL	Practical Quantitation	Limit

RL Reporting Limit

RPD Relative Percent Difference, a measure of the relative difference between two points

TEF Toxicity Equivalent Factor (Dioxin)
TEQ Toxicity Equivalent Quotient (Dioxin)

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Project/Site: PASUS-Dimock-AMEC-102011

Client: Cabot Oil

Lab Sample ID: NUJ3364-01 Client Sample ID: Well 1 Date Collected: 10/25/11 14:10

Matrix: Water

Date Received: 10/26/11 07:35

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	31.7		5.00		ug/L		10/27/11 12:30	10/27/11 14:14	1.00
Ethane	ND		5.00		ug/L		10/27/11 12:30	10/27/11 14:14	1.00
Propane	ND		5.00		ug/L		10/27/11 12:30	10/27/11 14:14	1.00
Isobutane	ND		10.0		ug/L		10/27/11 12:30	10/27/11 14:14	1.00
n-Butane	ND		5.00		ug/L		10/27/11 12:30	10/27/11 14:14	1.00
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Acetylene	105		62 - 124				10/27/11 12:30	10/27/11 14:14	1.00

Prep Type: Dissolved

Prep Batch: 11J6413_P

Project/Site: PASUS-Dimock-AMEC-102011

Method: RSK 175 - Methane, Ethane, and Ethene by GC

Lab Sample ID: 11J6413-BLK1 Client Sample ID: Method Blank **Matrix: Water**

Analysis Batch: U018963

Client: Cabot Oil

	Blank Blan	k						
Analyte	Result Qual	lifier RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	ND	5.00		ug/L		10/27/11 12:30	10/27/11 13:05	1.00
Ethane	ND	5.00		ug/L		10/27/11 12:30	10/27/11 13:05	1.00
Propane	ND	5.00		ug/L		10/27/11 12:30	10/27/11 13:05	1.00
Isobutane	ND	10.0		ug/L		10/27/11 12:30	10/27/11 13:05	1.00
n-Butane	ND	5.00		ug/L		10/27/11 12:30	10/27/11 13:05	1.00

Blank Blank

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Acetylene	105		62 _ 124	10/27/11 12:30	10/27/11 13:05	1.00

Lab Sample ID: 11J6413-BS1 Client Sample ID: Lab Control Sample Matrix: Water **Prep Type: Dissolved**

Analysis Batch: U018963 Prep Batch: 11J6413_P

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Methane	273	264	0	ug/L		97	80 - 120	
Ethane	512	495		ug/L		97	80 - 120	
Propane	762	708		ug/L		93	80 - 120	
Isobutane	993	941		ug/L		95	80 - 120	
n-Butane	993	948		ug/L		96	80 - 120	

LCS LCS

Surrogate	%Recovery	Qualifier	Limits	
Acetylene	104		62 124	

Lab Sample ID: 11J6413-MS1 Client Sample ID: Matrix Spike **Prep Type: Dissolved**

Matrix: Water

Analysis Batch: U018963

	Sample	Sample	Spike	Matrix Spike	Matrix Spil	(e			%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Methane	ND		273	273	8	ug/L		100	46 - 142	
Ethane	ND		512	500		ug/L		98	71 - 120	
Propane	ND		762	715		ug/L		94	70 - 130	
Isobutane	ND		993	955		ug/L		96	70 - 130	
n-Butane	ND		993	961		ug/L		97	70 - 130	

Matrix Spike Matrix Spike

Surrogate Acetylene	%Recovery	Qualifier	Limits
Acetylene	108		62 - 124

Lab Sample ID: 11J6413-MSD1

Matrix: Water

Analysis Batch: U018963								Prep Batch: 11J6413						
	Sample	Sample	Spike	∕latrix Spike Dup	Matrix Spi	ke Dur			%Rec.		RPD			
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit			
Methane	ND		273	274	0	ug/L		100	46 - 142	0.4	33			
Ethane	ND		512	501		ug/L		98	71 - 120	0.3	30			

ND 714 Propane 762 ug/L 94 70 - 130 0.1 30 Isobutane ND 993 946 ug/L 70 - 130 30 70 - 130 n-Butane ND 993 943 ug/L 95 30

> TestAmerica Nashville 11/7/2011

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Prep Batch: 11J6413_P

Prep Type: Dissolved

QC Sample Results

Client: Cabot Oil TestAmerica Job ID: NUJ3364

Project/Site: PASUS-Dimock-AMEC-102011

Method: RSK 175 - Methane, Ethane, and Ethene by GC (Continued)

Lab Sample ID: 11J6413-MSD1 Matrix: Water

Analysis Batch: U018963

Matrix Spike Dup Matrix Spike Dup

 Surrogate
 %Recovery
 Qualifier
 Limits

 Acetylene
 101
 62 - 124

Client Sample ID: Matrix Spike Duplicate

Prep Type: Dissolved Prep Batch: 11J6413_P

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QC Association Summary

Client: Cabot Oil TestAmerica Job ID: NUJ3364

Project/Site: PASUS-Dimock-AMEC-102011

Pesticides

Analysis Batch: U018963

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
11J6413-BLK1	Method Blank	Dissolved	Water	RSK 175	11J6413_P
11J6413-BS1	Lab Control Sample	Dissolved	Water	RSK 175	11J6413_P
11J6413-MS1	Matrix Spike	Dissolved	Water	RSK 175	11J6413_P
11J6413-MSD1	Matrix Spike Duplicate	Dissolved	Water	RSK 175	11J6413_P
NUJ3364-01	Well 1	Dissolved	Water	RSK 175	11J6413_P

Prep Batch: 11J6413_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
11J6413-BLK1	Method Blank	Dissolved	Water	RSK 175/3810	
11J6413-BS1	Lab Control Sample	Dissolved	Water	RSK 175/3810	
11J6413-MS1	Matrix Spike	Dissolved	Water	RSK 175/3810	
11J6413-MSD1	Matrix Spike Duplicate	Dissolved	Water	RSK 175/3810	
NUJ3364-01	Well 1	Dissolved	Water	RSK 175/3810	

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Project/Site: PASUS-Dimock-AMEC-102011

Client Sample ID: Well 1 Lab Sample ID: NU

Lab Sample ID: NUJ3364-01

Matrix: Water

Date Collected: 10/25/11 14:10 Date Received: 10/26/11 07:35

	Batch	Batch		Dilution	Batch	Prepared		
Ргер Туре	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Dissolved	Prep	RSK 175/3810		1.00	11J6413_P	10/27/11 12:30	JLS2	TAL NSH
Dissolved	Analysis	RSK 175		1.00	U018963	10/27/11 14:14	JLS2	TAL NSH

Laboratory References:

Client: Cabot Oil

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Road, Nashville, TN 37204, TEL 800-765-0980

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Method Summary

Client: Cabot Oil

Project/Site: PASUS-Dimock-AMEC-102011

TestAmerica Job ID: NUJ3364

Method	Method Description	Protocol	Laboratory
RSK 175	Methane, Ethane, and Ethene by GC	n 2	TAL NSH

Protocol References:

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Road, Nashville, TN 37204, TEL 800-765-0980

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Client: Cabot Oil Project/Site: PASUS-Dimock-AMEC-102011

Laboratory Authority		Program	EPA Region	Certification ID		
estAmerica Nashville		ACIL	393			
estAmerica Nashville	A2LA	ISO/IEC 17025	0453.07			
estAmerica Nashville	A2LA	WY UST		453.07		
estAmerica Nashville	AIHA - LAP	IHLAP		100790		
estAmerica Nashville	Alabama	State Program	4	41150		
estAmerica Nashville	Alaska	Alaska UST	10	UST-087		
estAmerica Nashville	Arizona	State Program	9	AZ0473		
estAmerica Nashville	Arkansas	State Program	6	88-0737		
estAmerica Nashville	CALA	CALA		3744		
estAmerica Nashville	California	NELAC	9	1168CA		
estAmerica Nashville	Colorado	State Program	8	N/A		
estAmerica Nashville	Connecticut	State Program	1	PH-0220		
estAmerica Nashville	Florida	NELAC	(12) (EXTERIOR SERVICE) SERVICE (12) (12) (13) (14) (15) (16) (16) (16) (16) (16) (16) (16) (16	E87358		
estAmerica Nashville	Illinois	NELAC	5	200010		
estAmerica Nashville	Iowa	State Program	7	131		
estAmerica Nashville	Kansas	NELAC	7	E-10229		
estAmerica Nashville	Kentucky	Kentucky UST	4	19		
estAmerica Nashville	Kentucky	State Program	4	90038		
estAmerica Nashville	Louisiana	NELAC	6	30613		
estAmerica Nashville	Louisiana	NELAC	6	LA100011		
estAmerica Nashville	Maryland	State Program	3	316		
estAmerica Nashville	Massachusetts	State Program		M-TN032		
estAmerica Nashville	Minnesota	NELAC	5	047-999-345		
estAmerica Nashville	Mississippi	State Program	4	N/A		
estAmerica Nashville	Montana	MT DEQ UST	8	NA		
estAmerica Nashville	New Hampshire	NELAC	1	2963		
estAmerica Nashville	New Jersey	NELAC	2	TN965		
estAmerica Nashville	New York	NELAC	2	11342		
estAmerica Nashville	North Carolina	North Carolina DENR	4	387		
estAmerica Nashville	North Dakota	State Program	8	R-146		
estAmerica Nashville	Ohio	OVAP	5	CL0033		
estAmerica Nashville	Oklahoma	State Program	6	9412		
estAmerica Nashville	Oregon	NELAC	10	TN200001		
estAmerica Nashville	Pennsylvania	NELAC	3	68-00585		
estAmerica Nashville	Rhode Island	State Program	1	LAO00268		
estAmerica Nashville	South Carolina	State Program	4	84009		
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estAmerica Nashville	USDA	USDA	0	S-48469		
estAmerica Nashville	Utah	NELAC	8	TAN 400453		
estAmerica Nashville	Virginia	NELAC Secondary AB	3 	460152		
estAmerica Nashville	Virginia	State Program	3	00323		
estAmerica Nashville	Washington	State Program	10	C789		
ΓestAmerica Nashville	West Virginia	West Virginia DEP	3	219		

Accreditation may not be offered or required for all methods and analytes reported in this package. Please contact your project manager for the laboratory's current list of certified methods and analytes.

TestAmerica Nashville 11/7/2011 2

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COOLER REC



	1003304
Cooler Received/Opened On 10/26/2011 @ 0735	
I. Tracking #3933(last 4 digits, FedEx)	
Courier: FedEx IR Gun ID 97460373	
2. Temperature of rep. sample or temp blank when opened: 2.5 Degrees Celsius	_
3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen?	YES NO
4. Were custody seals on outside of cooler?	ESNONA
If yes, how many and where:	
5. Were the seals intact, signed, and dated correctly?	@snona
6. Were custody papers inside cooler?	ESNONA
certify that I opened the cooler and answered questions 1-6 (intial))
7. Were custody seals on containers: YES (NO) and Intact	YESNONA
Were these signed and dated correctly?	YESNO. NA
8. Packing mat'l used Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper	Other None
9. Cooling process: lce-pack lce (direct contact) Dry ice	Other None
10. Did all containers arrive in good condition (unbroken)?	YES NONA
11. Were all container labels complete (#, date, signed, pres., etc)?	YES NONA
12. Did all container labels and tags agree with custody papers?	YES NONA
13a. Were VOA vials received?	YESNONA
b. Was there any observable headspace present in any VOA vial?	YESNONA
14. Was there a Trip Blank in this cooler? YES. NO.NA If multiple coolers, sequence	ce #
I certify that I unloaded the cooler and answered questions 7-14 (intial)	
15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level?	YESNO.NA
b. Did the bottle labels indicate that the correct preservatives were used	YES NO NA
16. Was residual chlorine present?	YESNO.(NA)
I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial)	DA
17. Were custody papers properly filled out (ink, signed, etc)?	YES NONA
18. Did you sign the custody papers in the appropriate place?	YESNONA
19. Were correct containers used for the analysis requested?	YES.).NONA
20. Was sufficient amount of sample sent in each container?	YES NO NA
I certify that I entered this project into LIMS and answered questions 17-20 (intial)	
I certify that I attached a label with the unique LIMS number to each container (intial)	
21. Were there Non-Conformance issues at login? YES. (NO) Was a PIPE generated? YES. (NO.).#

BIS = Broken in shipment Cooler Receipt Form.doc

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Revised 6/24/19/7/2011

Chain of Custody Record

NUJ3364 11/07/11 23 59

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TORREST AND PROPERTY AND PROPER		- Marine III - Alle													-						TestAmerica Laboratories
t Oil & Gas Corporation	Client Project						Site Co							Lab	Contac	t:					COC No:
ess:	Phillip Levass	eur											n Hall /		Fitzwa	ater					
enn Center West	Telephone:					9	Teleph								phone:						
/State/Zip:	412-249-3921 Email:						610-82		100 sis Tur	narous	d Triana			412-	352-38	336 / 6					1 of 1 COCs
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				Sediment	Solid	her:	H2SO4	3 ,	NaOH	ZnAc) NaOH	pre:	Iter	J.8	34A	15B	30B	MBAS	× –	bid	Sulfide	Sample Specific Notes /
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Doug Newton, AMEC Environment & Infrastructu	re, 502 West German	town Pike, Ply	mouth	Meeti	ng, PA	19462	(610)	828-	-8100		()	- 10 002									
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